processed as a **Minor, Municipal** permit. The discharge results from the operation of a 0.028 MGD wastewater treatment plant. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS, effective January 6, 2011 and updating permit language as applicable. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260 et seq.

1. Facility Name and Mailing Address:	Spotsylvania County High School STP 10900 HCC Drive Fredericksburg, VA 22408	SIC Code:	4952 WWTP
Facility Location:	6975 Courthouse Road Spotsylvania, VA 22553	County:	Spotsylvania
Facility Contact Name:	Doug Crooks	Telephone Number:	540-507-7362
2. Permit No.:	VA0087271	Expiration Date:	4/20/2012
Other VPDES Permits:	NA		
Other Permits:	Air Registration No. 40303; UST Registration IDs 20103183 and 3011443; Waste Permit No. VAD988226023; PWSID No. 3011443		
E2/E3/E4 Status:	NA		
3. Owner Name:	Spotsylvania County School Board		
Owner Contact/Title:	Dr. Shelly Redinger, Superintendent of Public Schools, Spotsylvania County	Telephone Number:	540-834-2500
4. Application Complete Date:	10/7/2011		
Permit Drafted By:	Anna Westernik	Date Drafted:	3/6/2012
Draft Permit Reviewed By:	Alison Thompson	Date Reviewed:	3/8/2012
WPM Review By:	Bryant Thomas	Date Reviewed:	3/20/2012
Public Comment Period :	3/31/2012	End Date:	4/30/2012

5. Receiving Waters Information: See **Attachment 1** for the Flow Frequency Determination.

Receiving Stream Name:	Ta River	Stream Code:	8-TAR
Drainage Area at Outfall:	6.21 square miles	River Mile:	005.94
Stream Basin:	York	Subbasin:	York
Section:	3	Stream Class:	III
Special Standards:	None	Waterbody ID:	VAN-F18R
7Q10 Low Flow:*	0.009 MGD	7Q10 High Flow:	0.31 MGD
1Q10 Low Flow:*	0.006 MGD	1Q10 High Flow:	0.22 MGD
30Q10 Low Flow:*	0.013 MGD	30Q10 High Flow:	0.62 MGD
Harmonic Mean Flow:	Undefined	30Q5 Flow:	0.03 MGD
303(d) Listed:	Yes (D.O.; pH excursions)		
TMDL Approved:	No (see **Attachment 2**, Planning Statement)	Date TMDL Approved:	NA

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

- ✓ State Water Control Law
- ✓ Clean Water Act
- ✓ VPDES Permit Regulation
- ✓ EPA NPDES Regulation
- ___ EPA Guidelines
- ✓ Water Quality Standards
- ___ Other: (PES, Occoquan Policy, Dulles)

*Although drainage area comparison establishes low flow values for 1Q10, 7Q10, and 30Q10, it is staff's best professional judgment that there is not mixing or dilution occuring because the discharge is to an area with swamp/marsh characteristics.

7. **Licensed Operator Requirements:** Class III

8. **Reliability Class:** Class II

9. **Permit Characterization:**

____	Private	____	Effluent Limited	____	Possible Interstate Effect
____	Federal	✓	Water Quality Limited	____	Compliance Schedule Required
____	State	____	Toxics Monitoring Program Required	____	Interim Limits in Permit
✓	POTW	____	Pretreatment Program Required	____	Interim Limits in Other Document
____	TMDL				

10. **Wastewater Sources and Treatment Description:**

The treatment works is a package plant with a design capacity of 0.028 million gallons per day (MGD). Sewage flow is received from the Spotsylvania County High School, the Post Oak Middle School, and seasonal restroom and concession areas at the baseball and football fields located on the school grounds.

Flow from the high school travels via gravity and flow from the middle school is pumped to a wet well at the headworks. Wastewater from this wet well enters the plant through a manual barscreen and flows to the extended aeration units or is fed to a surge tank (during periods of high flows) and then sent to the extended aeration units. Soda ash is fed at the wet well. Communitors are present prior to the surge tank and the extended aeration units. Screenings are deposited in a lidded 5-gallon bucket until they are disposed of in the county landfill.

After primary treatment, the wastewater flows to an extended aeration activated sludge basin, followed by dual secondary clarification. The clarifier effluent is gravity fed to the ballast tank (equalization basin), then pumped to tertiary filtration. The dual media tertiary filter media consists of sand and charcoal. Backwash water from the filter is pumped back to the headworks of the plant. After filtration, flow passes through UV disinfection units to a final effluent wet well that serves as the sampling point for the VPDES permitted parameters.

Filters are backwashed automatically or manually. Solids from the filters are sent to the wet well at the head of the plant.

Three UV banks are present. However, only two are currently in operation.

From the effluent wet well, the final effluent is pumped approximately a quarter of a mile to a high point in the topography of the land, then gravity fed the final quarter mile to the discharge point at Outfall 001. The two effluent pumps alternate operation. Discharge from Outfall 001 is to a channel leading to the Ta River.

See **Attachment 3** for a facility schematic/diagram.

TABLE 1
OUTFALL DESCRIPTION

Number	Discharge Sources	Treatment	Design Flow	Latitude / Longitude
001	Municipal Discharge	See Item 10 above.	0.028 MGD	38° 9' 11.7"/77° 39' 36.7"
See **Attachment 4** for (Brokenburg, DEQ #170B) topographic map.				

11. **Sludge Treatment and Disposal Methods:**

Waste activated sludge is pumped to an 8,100-gallon sludge holding tank (SHT). The holding tank is allowed to settle, and the clear supernatant is pumped back to the wet well at the headworks of the plant. Wasted sludge is pumped from the SHT and transported to the Massaponax WWTF (VA0025658).

12. Discharges, Intakes, Monitoring Stations and Other Items Within Waterbody VAN-F18R:

TABLE 2 – DISCHARGES & MONITORING STATIONS			
ID / Permit	Facility Name	Latitude / Longitude	Receiving Stream
VPDES Individual Permits			
VA0061301	Berkeley Elementary School	38° 06' 54" / 77° 36' 55"	Mat River
Storm Water General Permits			
VAR051415	Spotsylvania County Livingston Sanitary Landfill	Not Available	Northeast Creek, UT
Single Family Homes General Permits			
VAG406432	Oak Crest Estates, Lot 24A	Not Available	Glebe Run
DEQ Ambient Monitoring Stations			
8-MAT001.87	DEQ Ambient Monitoring Station	38° 06' 23" / 77° 36' 09"	Mat River
8-MTA001.69	DEQ Ambient Monitoring Station	38° 06' 11" / 77° 28' 53"	Matta River
8-MTA008.96	DEQ Ambient Monitoring Station	38° 06' 40.7" / 77° 34' 6.3"	Matta River
8-TAR002.40	DEQ Ambient Monitoring Station	38° 08' 02" / 77° 36' 44"	Ta River

13. Material Storage: Chemical and spare parts storage is in a shed at the treatment plant. A 50-gallon container of soda ash solution is located in the building housing the UV lights. Any overflow from this container would be sent to the wet well at the head of the plant.

TABLE 3 MATERIAL STORAGE		
Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Sulfuric Acid	One Gallon	Stored in Control Building
Soda Ash	Approximately 1 to 10 Bags	Stored in Shed
Calcium Hypochlorite*	Approximately 1 to 8 5-gal. Buckets	Stored in Control Building
Sodium Sulfite*	Approximately 1 to 10 5-gal. Buckets	Stored in Control Building

*These materials are stored at this facility but used at the J.J. Wright and Berkley Elementary Schools Sewage Treatment Plants.

14. Site Inspection: Performed by Anna Westernik on February 23, 2012 (see **Attachment 5**).

15. Receiving Stream Water Quality and Water Quality Standards:

a. Ambient Water Quality Data

Discharge is to a section of the Ta River with swamp-like conditions. The nearest downstream monitoring station is 8-TAR002.40, located on the Ta River at the Route 739 Bridge Crossing, approximately 3.33 rivermiles downstream from Outfall 001. Ambient monitoring from this station indicates the presence of pH and dissolved oxygen (D.O.) impairments that result in aquatic life use not being supported. These causes may be due to natural conditions. Due to these findings, the portion of the Ta River that extends from the confluence with Bluff Run, approximately 0.7 rivermiles upstream from Route 738 to the confluence with the Mat River is listed as impaired for D.O. and pH.

The recreation and wildlife uses of this section of the Ta River are considered to be fully supporting. The fish consumption use was not accessed.

There are downstream impairments listed on the Matta River for aquatic life use due to biological monitoring events resulting in Virginia Stream Condition Index (VSCI) scores that indicate an impaired macroinvertebrate community and recreational use due to excursions from the maximum *E. coli* bacteria criteria.

There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay.

The full planning statement is found in **Attachment 2.**

b. Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, the Ta River, is located within Section 3 of the York River Basin and designated as Class III water.

Class III waters must achieve a D.O. of 4.0 mg/L or greater at all times, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32° C, and must maintain a pH of 6.0-9.0 standard units (S.U.).

1) Ammonia:

Although the 1Q10 and 30Q10 instream waste concentrations at design flow are 21% and 46% respectively, it is staff's best professional opinion that no mixing or dilution is occurring because discharge is to an area with swamp/marsh characteristics. Therefore, ammonia criteria determination will be based upon an assumption of no instream flow during drought conditions and hence, effluent data shall be used to calculate ammonia criteria.

Review of effluent monitoring data for pH and temperature finds that the 90th percentile pH and temperatures values significantly differ from the data used to establish ammonia criteria in the 2007 permit reissuance. The fresh water, aquatic life Water Quality Criteria for Ammonia is dependent on the instream temperature and pH. The 90th percentile temperature and pH values are used because they best represent the critical conditions of the receiving stream. The 90th percentile effluent pH and temperature values derived from the period of January 2011 through December 2011 are 8.4 S.U. and 26° C (see **Attachment 6**). The 90th percentile values used in the previous reissuance were 7.2 S.U. and 22° C.

2) Metals Criteria:

Metals criteria were determined using an effluent default hardness value of 50 mg/L.

3) Bacteria Criteria:

The Virginia Water Quality Standards 9VAC25-260-170.A state that the following criteria shall apply to protect primary recreational uses in surface waters:

E. coli bacteria per 100 mL of water shall not exceed a monthly geometric mean of the following:

	Geometric Mean[1]
Freshwater *E. coli* (N/100 mL)	126

[1]For a minimum of four weekly samples taken during any calendar month

Water quality criteria for all pollutants is found in **Attachment 7.**

c. Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, the Ta River, is located within Section 3 of the York River Basin. This section has not been designated with a special standard designation.

d. Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched on November 22, 2011 for records to determine if there are threatened or endangered species in the vicinity of the discharge. The following threatened or endangered species were identified within a 2 mile radius of the discharge: Dwarf Wedgemussel, Upland Sandpiper, Loggerhead Shrike, Bald Eagle, and Loggerhead Migrant Shrike. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and protect the threatened and endangered species found near the discharge.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The permit limits established for this facility were developed recognizing the ecological characteristics of a marsh or swamp environment. The limits were calculated to maintain the Virginia Water Quality Standards and to protect the existing water quality of the receiving waters, including narrative criteria. Because of this, it is staff's best professional judgment that the waterbody is a Tier I water. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points are equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLAs) are calculated. The WLAs values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. In the case of ammonia evaluations, limits are needed if the 97th percentile of the 30-day average effluent concentration values is greater than the chronic WLA. Effluent limitations are the calculated on the most limiting WLA, the required sampling frequency and statistical characteristics of the effluent data.

a. Mixing Zones and Wasteload Allocations (WLAs):
Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA \quad \frac{C_o [Q_e + (f) (Q_s)] - [(C_s) (f) (Q_s)]}{Q_e}$$

Where:	WLA	Wasteload allocation
	C_o	In-stream water quality criteria
	Q_e	Design flow
	Q_s	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
	f	Decimal fraction of critical flow
	C_s	Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10 and 1Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the C_o.

Staff derived wasteload allocations where parameters are reasonably expected to be present in an effluent (e.g., total residual chlorine where chlorine is used as a means of disinfection) and where effluent data indicate the pollutant is present in the discharge above quantifiable levels. With regard to the Outfall 001 discharge, ammonia as N is likely present since this is a sewage treatment plant. **Attachment 7** details water quality criteria applicable to the receiving stream and WLA derived from these criteria.

b. Effluent Limitations, Outfall 001 – Toxic Pollutants

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits. Only acute WLAs are used in determination of limits since the flow from this facility is not continuous.

The VPDES Permit Regulation at 9VAC25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

Ammonia as N/TKN:

Staff reevaluated pH and temperature and has concluded it is significantly different than what was used previously to derive ammonia criteria (see Section 15.b.1) of this fact sheet. As a result, staff used the new data to determine new ammonia water quality criteria, new wasteload allocations (WLAs) and new ammonia limits.

In the last permit reissuance, DEQ used a monthly average TKN limitation of 3.0 mg/L to control the ammonia level in the discharge. It is generally accepted that TKN consists of approximately 60% ammonia in raw wastewater. As the waste stream is treated, the ammonia component of TKN is converted to Nitrate (NO_3) and Nitrite (NO_2). It is estimated that a facility achieving a TKN limit of 3.0 mg/L essentially removes ammonia from the waste stream, resulting in a 'self-sustaining' quality effluent that protects against ammonia toxicity.

The toxicity of ammonia is dependent on the pH of the effluent and/or receiving stream. Ammonia can exist as both "ionized ammonia" (NH_4) and "un-ionized ammonia" (NH_3) forms. Research has shown that the un-ionized ammonia is the fraction that is toxic to aquatic life, while the ionized ammonia has been found to have little or no toxic effect. Furthermore, it has been demonstrated that the un-ionized fraction increases correspondingly with rising pH values; thus, increasing potential toxicity.

Staff has recalculated the acute WLA for ammonia using newly-calculated criteria and a 1Q10 of 0.0 MGD (see Section 15.b of this fact sheet). In accordance with current DEQ guidance, staff used a default data point of 9.0 mg/L and the calculated WLA to derive limits. An ammonia monthly average of 3.88 mg/L and a weekly average limit of 3.88 mg/L were derived for this discharge (see **Attachment 8).** The current TKN limit of 3.0 mg/L is deemed to be protective of the receiving stream and shall remain in this permit. As in the previous reissuance, the weekly average limit will be 4.5 mg/L based on a multiplier of 1.5 times the monthly average.

c. Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to D.O., Carbonaceous Biochemical Oxygen Demand-5 day ($cBOD_5$), Total Suspended Solids (TSS), Total Kjeldahl Nitrogen (TKN), and pH limitations are proposed.

$cBOD_5$, TSS, D.O., and TKN limitations are based on best professional judgment and DEQ guidance for swamps and marshes (see **Attachment 9**). This guidance is applicable to waters that are shallow and have intermittent flow. Even though there may be measureable flow in this portion of the Ta River during drought periods; this river segment has characteristics of a swamp and hence, mixing is nominal and the segment cannot be modeled. The D.O limit shall remain at 6.0 mg/L instead of 5.0 mg/L as stated in the DEQ guidance for swamps and marshes since it can be demonstrated that the facility has the ability to meet the D.O. limit as 6.0 mg/L that was present in the last permit reissuance.

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards 9VAC25-260-170.

d. Effluent Limitations and Monitoring Summary

The effluent limitations are presented in the following table. Limits were established for $cBOD_5$, TSS, TKN, pH, D.O., and *E. Coli.*

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and then a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for cBOD and TSS. The limits in this permit are water-quality-based effluent limits and result in greater than 85% removal.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19. Effluent Limitations/Monitoring Requirements:

Design flow is 0.028 MGD.

Effective Dates: During the period beginning with the permit effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	1/D	Estimate
pH	1	NA	NA	6.0 S.U.	9.0 S.U.	1/D	Grab
$cBOD_5$	1, 2	10 mg/L 1.1 kg/day	15 mg/L 1.6 kg/day	NA	NA	1/M	Grab
Total Suspended Solids (TSS)	2	10 mg/L 1.1 kg/day	15 mg/L 1.6 kg/day	NA	NA	1/M	Grab
Dissolved Oxygen (D.O.)	1, 2	NA	NA	6.0 mg/L	NA	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	1, 2	3.0 mg/L 0.30 kg/day	4.5 mg/L 0.48 kg/day	NA	NA	1/M	Grab
E. coli (Geometric Mean) [a]	1	126 n/100mls	NA	NA	NA	1/W	Grab

The basis for the limitations codes are:

1. Water Quality Standards
2. Best Professional Judgment

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.

1/D = Once every day.
1/M = Once every month.
1/W = Once every week.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.
Grab = An individual sample collected over a period of time not to exceed 15-minutes.

[a] Samples shall be collected between the hours of 10 A.M. and 4 P.M.

20. Other Permit Requirements:

Permit Section Part I.B. contains quantification levels and compliance reporting instructions. 9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

21. Other Special Conditions:

a. 95% Capacity Reopener. The VPDES Permit Regulation at 9VAC25-31-200.B.4. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.

b. Indirect Dischargers. Required by VPDES Permit Regulation, 9VAC25-31-200 B.1. and B.2. for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

c. O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. On or before August 1, 2012, the permittee shall submit for approval an Operations and Maintenance (O&M) Manual or a statement confirming the accuracy and completeness of the current O&M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

d. CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

e. Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200.C., and Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class III operator.

f. Reliability Class. The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet reliability Class II.

g. Sludge Reopener. The VPDES Permit Regulation at 9VAC25-31-220.C. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

h. Sludge Use and Disposal. The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2., and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

i. TMDL Reopener. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL that may be developed and approved for the receiving stream.

22. Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Changes to the Permit from the Previously Issued Permit:

a. Special Conditions:
The Water Quality Reopener Special Condition has been removed.

b. Monitoring and Effluent Limitations:
The sampling frequency for *E. coli* has been increased from 2/M to 1/W to comply with the current Water Quality Standards (9VAC25-260-170.A.2.).

c. Other:
Part II of the permit has been updated to include VELAP language.

24. Variances/Alternate Limits or Conditions: None

25. Public Notice Information:

First Public Notice Date: 3/30/2012 Second Public Notice Date: 4/6/2012

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193; Telephone No. (703) 583-3837; anna.westernik@deq.virginia.gov. See **Attachment 10** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action and may request a public hearing during the comment period. Comments shall include the name, address and telephone number of the writer and of all persons represented by the commenter/requester and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):
Ambient monitoring from DEQ Monitoring Station 8-TAR0002.40, located on the Ta River approximately 3.33 rivermiles downstream from Outfall 001, indicates the presence of pH and dissolved oxygen (D.O.) impairments that result in aquatic life use not being supported. These causes may be due to natural conditions. Due to these findings, the portion of the Ta River that extends from the confluence with Bluff Run, approximately 0.7 rivermiles upstream from Route 738 to the confluence with the Mat River is listed as impaired for D.O. and pH. TMDLs for the D.O. and pH impairments are scheduled to be completed in 2022.

The Ta River flows into the Matta River. There are downstream impairments on the Matta River for aquatic use (impaired macroinvertebrate community) and recreational use (excursions from the maximum *E. Coli* criterion at DEQ Monitoring Station MTA001.69). The Aquatic Use TMDL is scheduled for completion in 2020 and the Recreational Use TMDL is scheduled for completion in 2016.

There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay.

See **Attachment 2 --** Planning Statement

27. Additional Comments:

Previous Board Action(s):	None.
Staff Comments:	None
Public Comment:	No comments were received during the public notice.
EPA Checklist:	The checklist can be found in **Attachment 11**.

Attachments to Fact Sheet for VPDES Permit No. VA0087271

Attachment 1	Flow Frequency Determination
Attachment 2	DEQ Planning Statement
Attachment 3	Facility Schematics/Diagram
Attachment 4	Brokenburg 170B Topographic Map
Attachment 5	Site Inspection Report Dated February 23, 2012
Attachment 6	90th Percentile Effluent pH and Temperature Calculations
Attachment 7	Water Quality Criteria and WLA Derivations
Attachment 8	Derivation of Ammonia Limits
Attachment 9	DEQ Swamps and Marshes Guidance
Attachment 10	Public Notice
Attachment 11	EPA Checklist

Flow Frequencies at the Spotyslvania County Hight School STP Discharge Point (VA0087271)
Updated November 23, 2011

Po River near Spotsylvania, VA (Gaging Station #01673800)						
	cfs	MGD			cfs	MGD
30Q10 High Flow	12.00	7.76		30Q10 Low Flow	0.26	0.168
7Q10 High Flow	6.00	3.88		7Q10 Low Flow	0.17	0.110
1Q10 High Flow	4.30	2.78		1Q10 Low Flow	0.12	0.078
30Q5	0.63	0.41				
Ta River at the Discharge Point (Outfall 001)*						
30Q10 High Flow (MGD)		0.62		30Q10 Low Flow (MGD)		0.013
7Q10 High Flow (MGD)		0.31		7Q10 Low Flow (MGD)		0.009
1Q10 High Flow (MGD)		0.22		1Q10 Low Flow (MGD)		0.006
30Q5 (MGD)		0.03				

The Flow Value in MGD is calculated as such: cfs x 0.6463 = MGD

Flow frequencies were calculated using data collected at Gaging Station #01673800 during the period of May 1963 to 2003. The gage is approximately 3.77 miles downstream of the discharge point. The values at the discharge point were calculated using drainage area proportions and do not address any withdrawals, discharges, or springs lying between the gage and the discharge point.

The following formula was used to determine the flow at the discharge point:

$$\frac{\text{(Drainage Area at Discharge Point) Flow at Gaging Station}}{\text{Drainage Area at Gaging Station}}$$

77.4 = DA at Gaging Station
6.21 = DA at Outfall 001

High flow months are Dec-May

The Harmonic Flow at the gaging station is undefined.

*Although drainage area comparison establishes low flow values for 1Q10, 7Q10, and 30Q10, it is staff's best professional judgment that there is not mixing or dilution occuring because the discharge is to an area with swamp/marsh characteristics.

Attachment 1

To:	Anna Westernik
From:	Katie Conaway
Date:	November 9, 2011
Subject:	Planning Statement for Spotsylvania County High School STP
Permit Number:	VA0087271

Discharge Type:	Municipal
Discharge Flow:	0.028 MGD
Receiving Stream:	Ta River
Latitude / Longitude:	38° 9' 11.7"; -77° 39' 36.7"
Streamcode:	8-TAR
Waterbody:	VAN-F18R
Water Quality Standards:	Class III, Section 3.
Rivermile:	005.94
Drainage Area:	6.21 mi^2

1. Is there monitoring data for the receiving stream?

Yes. However; it should be noted that the DEQ station with monitoring data is not located in the same assessment unit as the portion of the Ta River that receives the discharge from VA0087271. The portion of the Ta River that receives the discharge from this facility has not been assessed.

- If yes, please attach latest summary.

The nearest downstream monitoring station is Station 8-TAR002.40, located on the Ta River at the Route 738 bridge crossing. This station is located approximately 3.33 rivermiles downstream from Outfall 001. The following is a monitoring summary for Station 8-TAR002.40 as taken from the 2010 Integrated Assessment:

Class III, Section 3.

DEQ ambient water quality monitoring station 8-TAR002.40, at Route 738.

Ambient monitoring indicate pH and dissolved oxygen impairments for the aquatic life use, which is not supporting. These causes may be due to natural conditions. The recreation and wildlife uses are considered fully supporting. The fish consumption use was not assessed.

- If no, where is the nearest downstream monitoring station.

N/A

2. Is the receiving stream on the current 303(d) list?

Yes.

- If yes, what is the impairment?

The portion of the Ta River that extends from the confluence with Bluff Run, approximately 0.7 rivermile upstream from Route 738, downstream until the confluence with the Mat River is listed as impaired for the following:

Aquatic Life Use Impairment – Dissolved Oxygen: Sufficient excursions below the minimum dissolved oxygen criterion (2 of 16 samples - 12.5%) were recorded at DEQ's ambient water quality monitoring station (8-TAR002.41) at the Route 738 crossing to assess this stream segment as not supporting the aquatic life use goal for the 2010 water quality assessment.

Aquatic Life Use Impairment – pH: Sufficient excursions below the lower limit of the pH criterion range (2 of 16 samples - 12.5%) were recorded at DEQ's ambient water quality monitoring station (8-TAR002.40) at the Route 738 crossing to assess this stream segment as not supporting the aquatic life use goal for the 2010 water quality assessment.

- Has the TMDL been prepared?

No. Please note; a Natural Conditions Assessment Report will be completed for the Ta River. The purpose of this study is to determine whether the causes of the aquatic life use impairments are due to the natural environment or due to anthropogenic effects. If the natural conditions are determined to be contributing to the impairment, a TMDL will not be required.

- If yes, what is the WLA for the discharge?

No.

- If no, what is the schedule for the TMDL?

Dissolved Oxygen Impairment – 2022
pH Impairment - 2022

3. If the answer to (2) above is no, is there a downstream 303(d) listed impairment?

The Ta River flows into the Matta River. There are several impairments listed on the Matta River.

- If yes, what is the impairment?

Aquatic Life Use Impairment: One out of two biological monitoring events in 2003 resulted in a VSCI scores which indicate an impaired macroinvertebrate community.

Recreational Use Impairment: Sufficient excursions from the maximum E. coli bacteria criterion (8 of 28 samples - 28.6%) were recorded at DEQ's ambient water quality monitoring station (8-MTA001.69) at the Route 632 crossing to assess this stream segment as not supporting the recreation use goal for the 2010 water quality assessment.

- Has a TMDL been prepared?

Aquatic Life Use Impairment: No.
Recreational Use Impairment: No.

- Will the TMDL include the receiving stream?

  The TMDLs will not specifically include the receiving stream, but all upstream point source dischargers will be considered during TMDL development.

- Is there a WLA for the discharge?

  No.

- What is the schedule for the TMDL?

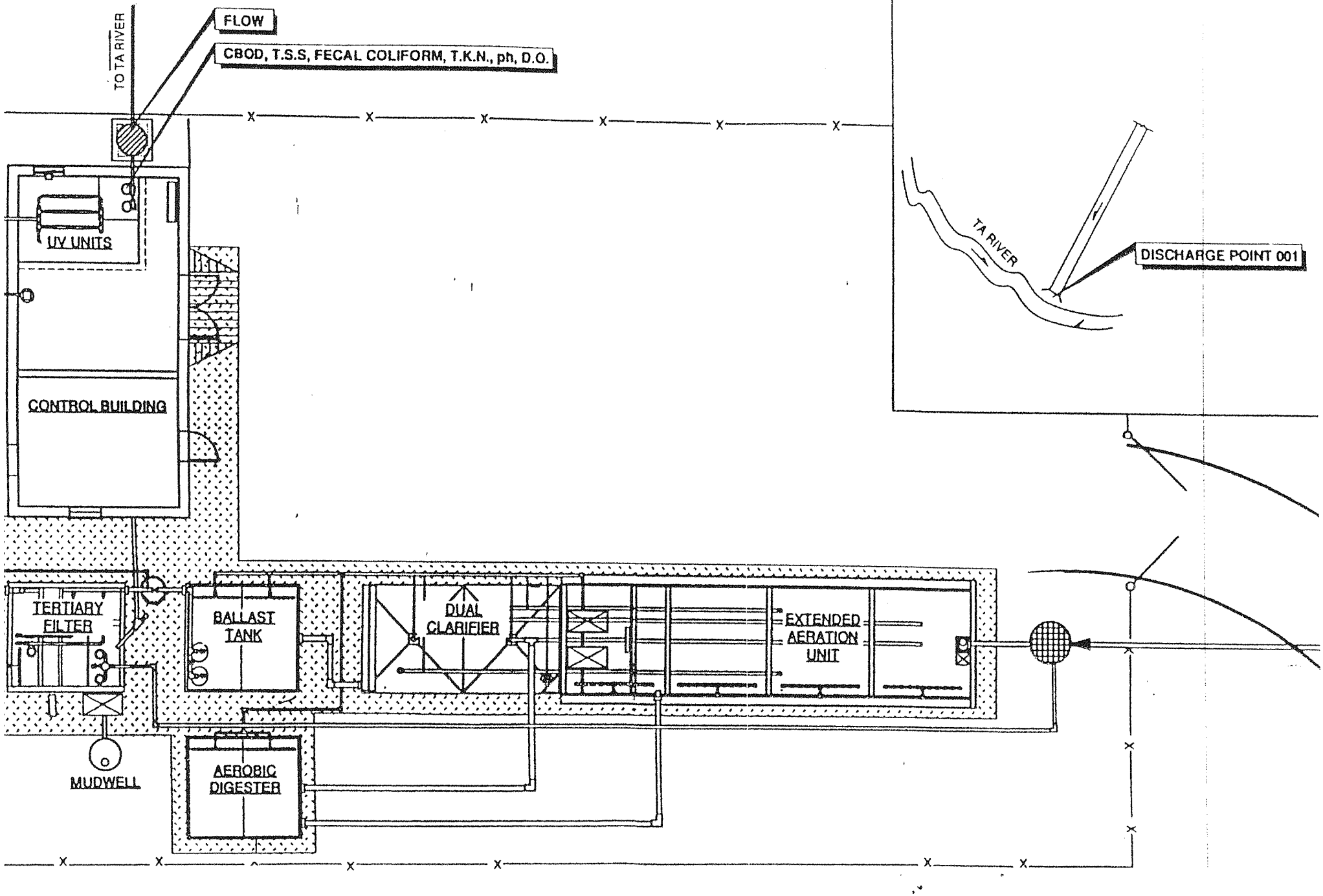
  Aquatic Life Use TMDL – Due 2020
  Recreational Use TMDL – Due 2016

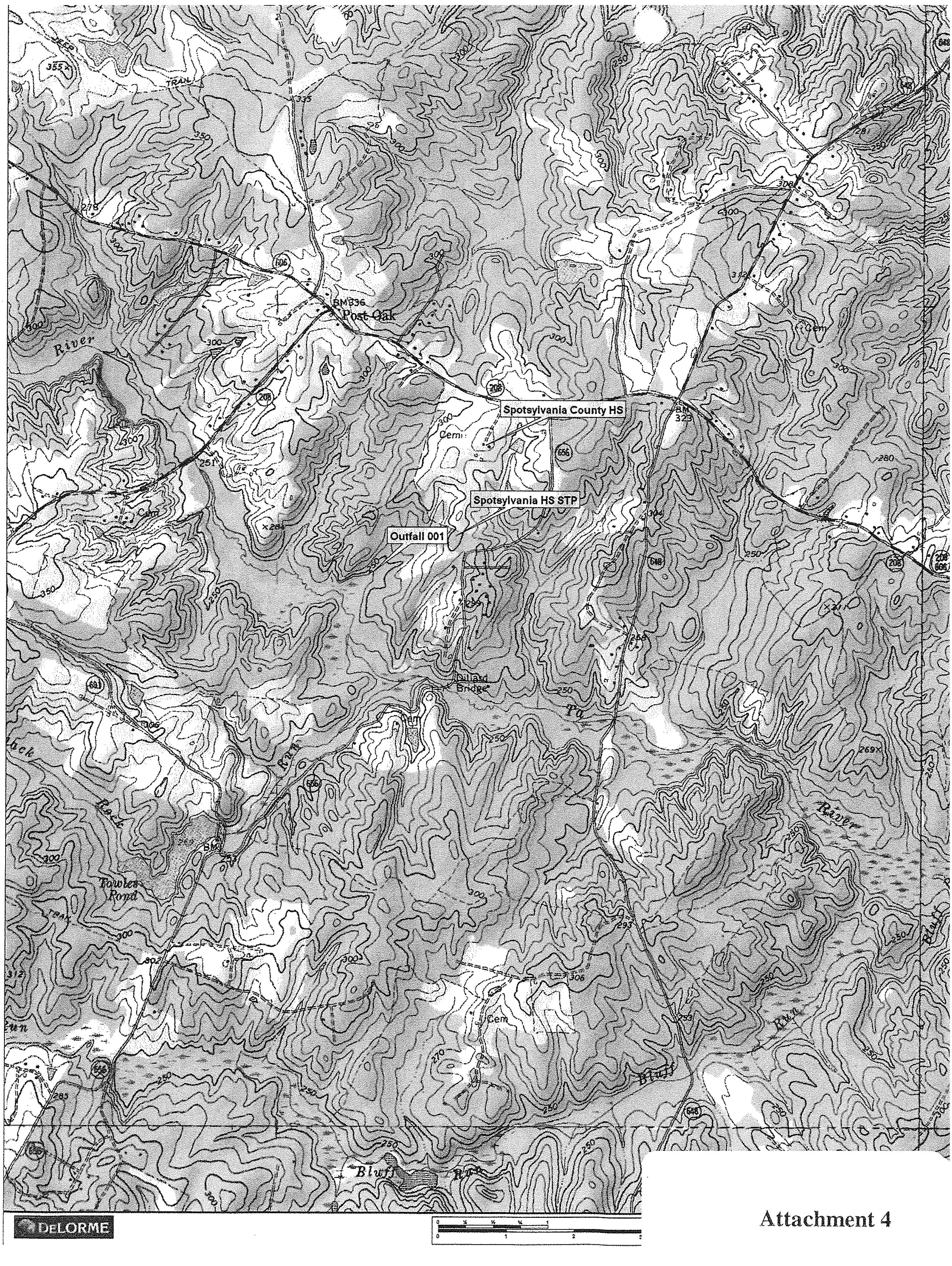
4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

5. Fact Sheet Requirements – Please provide information on other VPDES permits or VADEQ monitoring stations located within a 2 mile radius of the facility. In addition, please provide information on any drinking water intakes located within a 5 mile radius of the facility.

There are no DEQ monitoring stations or VPDES permits within a 2 mile radius of this facility. There are no drinking water intakes within a 5 mile radius of this facility.


TO TA RIVER
FLOW
CBOD, T.S.S, FECAL COLIFORM, T.K.N., ph, D.O.
UV UNITS
CONTROL BUILDING
TERTIARY FILTER
BALLAST TANK
DUAL CLARIFIER
EXTENDED AERATION UNIT
MUDWELL
AEROBIC DIGESTER
TA RIVER
DISCHARGE POINT 001



Attachment 4

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

Northern Regional Office

TO: Spotsylvania County High School STP Reissuance File VA0087271

FROM: Anna Westernik, Water Permit Writer

DATE: February 23, 2012

SUBJECT: February 23, 2012 Site Inspection for the 2012 Permit Reissuance

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As part of the VPDES permit reissuance process for the permit expiring April 20, 2012, a site inspection of the Spotsylvania County High School STP was made on February 23, 2012. Present during the inspection were myself and Stewart Robbins of Spotsylvania County.

The treatment works is a package plant with a design capacity of 0.028 million gallons per day (MGD). Sewage flow is received from the Spotsylvania County High School, the Post Oak Middle School, and seasonal restroom and concession areas at the baseball and football fields located on the school grounds.

Flow from the high school travels via gravity and flow from the middle school is pumped to a wet well at the headworks. Wastewater from this wet well enters the plant through a manual barscreen and flows to the extended aeration units or is fed to a surge tank (during periods of high flows) and then sent to the extended aeration units. Soda ash is fed at the wet well. Communitors are present prior to the surge tank and the extended aeration units. Screenings are deposited in a lidded 5-gallon bucket until they are disposed of in the county landfill.

After primary treatment, the wastewater flows to an extended aeration activated sludge basin, followed by dual secondary clarification. The clarifier effluent is gravity fed to the ballast tank (equalization basin), then pumped to tertiary filtration. The dual media tertiary filter media consists of sand and charcoal. Backwash water from the filter is pumped back to the headworks of the plant. After filtration, flow passes through UV disinfection units to a final effluent wet well that serves as the sampling point for the VPDES permitted parameters.

Filters are backwashed automatically or manually. Solids from the filters are sent to the wet well at the head of the plant.

Three UV banks are present. However, only two are currently in operation.

From the effluent wet well, the final effluent is pumped approximately a quarter of a mile to a high point

in the topography of the land, then gravity fed the final quarter mile to the discharge point at Outfall 001. The two effluent pumps alternate operation. The path to the outfall was easily accessible and well maintained.

Discharge from Outfall 001 is to a channel leading to the Ta River. There were no signs of erosion and the effluent appeared to be clear and free from odor at the discharge point.

The receiving stream (the Ta River) is meandering and has swamp-like characteristics. The river had a muddy appearance. It is unlikely that mixing of the effluent and the receiving stream water occurs during the low flow portion of the year.

This facility has an 8,100-gallon sludge holding tank. Supernatant from the sludge holding tanks is sent to the wet well at the head of the plant. All wasted sludge is sent to the Massaponax WWTF.

Chemical storage and spare parts storage is in a shed at the treatment plant. A 50-gallon container of soda ash solution is located in the building housing the UV lights. Any overflow from this container would be sent to the wet well at the head of the plant.

Spotsylvania HS STP (VA0087271)
Effluent pH and Temperature Data
Jan 2011 -- Dec 2011

Date	pH	Temperature
1-Jan-11	8.07	10.2
3-Jan-11	7.75	9.5
4-Jan-11	7.88	11.3
5-Jan-11	7.92	10.2
6-Jan-11	8.16	10.4
7-Jan-11	7.96	10.8
10-Jan-11	7.85	9.5
11-Jan-11	8.00	15.4
12-Jan-11	7.77	11
13-Jan-11	7.76	9.7
14-Jan-11	7.65	10.1
18-Jan-11	8.21	10.2
19-Jan-11	8.43	10.7
20-Jan-11	8.30	10.1
21-Jan-11	8.04	10.6
22-Jan-11	8.03	10.6
24-Jan-11	7.62	9
25-Jan-11	7.90	10
26-Jan-11	7.69	10.2
27-Jan-11	7.79	10.2
28-Jan-11	7.77	11
29-Jan-11	7.64	10.6
31-Jan-11	7.91	9.8
1-Feb-11	7.49	9.9
2-Feb-11	7.73	10.2
3-Feb-11	7.72	10.6
4-Feb-11	7.51	10.6
5-Feb-11	6.88	11.6
7-Feb-11	7.54	10.8
8-Feb-11	7.55	10.9
9-Feb-11	7.75	10.8
10-Feb-11	7.47	11.2
11-Feb-11	7.54	11.2
12-Feb-11	7.56	11.2
14-Feb-11	7.64	10.5
15-Feb-11	8.04	11
16-Feb-11	7.98	11.2
17-Feb-11	7.93	12.1
18-Feb-11	7.76	12.7
19-Feb-11	7.24	13.1
21-Feb-11	7.76	12.4
22-Feb-11	7.68	12.3
23-Feb-11	7.98	11.9
24-Feb-11	7.53	12.4
25-Feb-11	7.83	14.2
26-Feb-11	7.30	13
28-Feb-11	7.98	12.8
1-Mar-11	8.83	13.1
2-Mar-11	7.86	13.1
3-Mar-11	7.81	13.6
4-Mar-11	7.31	13.1

Attachment 6

Spotsylvania HS STP (VA0087271)
Effluent pH and Temperature Data
Jan 2011 -- Dec 2011

5-Mar-11	7.46	13.2
7-Mar-11	7.74	13.2
8-Mar-11	7.93	12.8
9-Mar-11	7.80	13.2
10-Mar-11	7.49	14
11-Mar-11	7.13	14.8
12-Mar-11	7.32	14.6
14-Mar-11	7.83	14.7
15-Mar-11	7.45	15
16-Mar-11	7.94	14.9
17-Mar-11	7.64	15
18-Mar-11	7.67	15.6
19-Mar-11	7.56	16.6
21-Mar-11	7.59	15.9
22-Mar-11	7.25	16.5
23-Mar-11	7.20	17.2
24-Mar-11	7.06	17.2
25-Mar-11	7.32	17.2
26-Mar-11	7.53	16.9
28-Mar-11	7.28	15.1
29-Mar-11	7.34	15
30-Mar-11	7.78	15.4
31-Mar-11	7.89	16.1
1-Apr-11	7.52	16.4
2-Apr-11	7.61	16.3
3-Apr-11	7.76	16.2
4-Apr-11	7.70	16.2
5-Apr-11	7.81	17.3
6-Apr-11	7.88	17.3
7-Apr-11	8.12	17.7
8-Apr-11	7.76	17.4
9-Apr-11	7.33	18.5
10-Apr-11	7.46	18.1
11-Apr-11	7.62	18.2
12-Apr-11	7.55	19.2
13-Apr-11	7.71	19.4
14-Apr-11	7.42	19.4
15-Apr-11	7.39	19.5
16-Apr-11	7.53	10.2
19-Apr-11	7.19	18.9
21-Apr-11	7.29	19.1
23-Apr-11	7.62	18.4
24-Apr-11	7.65	18.9
25-Apr-11	7.99	19.1
26-Apr-11	7.54	19.3
27-Apr-11	7.71	20
28-Apr-11	7.31	20.2
29-Apr-11	7.01	19.8
30-Apr-11	6.97	20.1
2-May-11	7.05	19.3
3-May-11	7.43	19.7
4-May-11	7.31	19.8
5-May-11	7.07	19.5

Spotsylvania HS STP (VA0087271)
Effluent pH and Temperature Data
Jan 2011 -- Dec 2011

6-May-11	7.35	19.4
7-May-11	7.32	19.7
8-May-11	7.31	19.6
9-May-11	7.63	19.5
10-May-11	7.60	19.8
11-May-11	7.38	20
12-May-11	7.64	20.3
13-May-11	7.72	20.5
14-May-11	7.75	20.8
15-May-11	7.53	21.2
16-May-11	7.44	21
17-May-11	7.65	21.2
18-May-11	8.02	21.1
19-May-11	8.03	20.5
20-May-11	7.83	21.1
21-May-11	7.46	21.7
22-May-11	7.64	21.5
23-May-11	7.71	22.2
24-May-11	8.03	22.4
25-May-11	8.02	22.5
26-May-11	7.91	22.9
27-May-11	7.78	23.3
28-May-11	7.57	23.6
31-May-11	7.49	24.1
1-Jun-11	8.04	24.4
2-Jun-11	7.86	24.2
3-Jun-11	7.72	23.5
4-Jun-11	7.46	23.8
6-Jun-11	7.99	23.4
7-Jun-11	7.95	23.2
8-Jun-11	8.01	23.4
9-Jun-11	7.96	23.6
10-Jun-11	8.05	23.8
11-Jun-11	8.02	24
13-Jun-11	8.24	23.9
14-Jun-11	8.09	23.9
15-Jun-11	8.31	23.7
16-Jun-11	8.07	23.3
18-Jun-11	8.04	23.6
19-Jun-11	7.89	24.1
20-Jun-11	7.98	23.2
21-Jun-11	7.95	23
22-Jun-11	8.13	23.4
23-Jun-11	8.16	23.5
24-Jun-11	8.03	23.6
26-Jun-11	7.98	23.6
27-Jun-11	8.03	23.6
28-Jun-11	7.86	24
29-Jun-11	8.01	24.1
3-Jul-11	8.09	25
5-Jul-11	8.46	25
6-Jul-11	8.12	24.9
7-Jul-11	8.27	25

Spotsylvania HS STP (VA0087271)
Effluent pH and Temperature Data
Jan 2011 -- Dec 2011

9-Jul-11	7.86	25.8
12-Jul-11	8.17	25.6
13-Jul-11	8.27	25.7
14-Jul-11	7.90	25.5
15-Jul-11	8.32	25
18-Jul-11	8.35	25.5
20-Jul-11	8.13	25.7
21-Jul-11	8.35	25.8
22-Jul-11	8.34	25.9
23-Jul-11	7.18	26.9
24-Jul-11	7.96	26.8
25-Jul-11	8.34	26.5
26-Jul-11	8.24	26.2
27-Jul-11	8.49	26.6
28-Jul-11	8.34	26.2
29-Jul-11	8.17	27
31-Jul-11	7.87	26.9
1-Aug-11	8.37	26.7
2-Aug-11	8.31	26.6
3-Aug-11	8.26	26.7
4-Aug-11	8.48	26.3
5-Aug-11	8.21	26.8
8-Aug-11	8.52	26.6
9-Aug-11	8.55	26.7
10-Aug-11	8.55	26.2
11-Aug-11	8.57	26.2
12-Aug-11	8.52	26.1
13-Aug-11	8.41	26.6
15-Aug-11	8.41	25.8
16-Aug-11	8.43	25.5
17-Aug-11	8.37	25.5
18-Aug-11	8.48	25.6
19-Aug-11	8.34	25
20-Aug-11	8.39	25.5
22-Aug-11	8.33	26.1
23-Aug-11	8.45	25.3
24-Aug-11	8.36	25.1
25-Aug-11	8.36	25.3
26-Aug-11	8.40	25.5
27-Aug-11	8.31	25.6
28-Aug-11	8.30	25.6
29-Aug-11	8.58	25.7
30-Aug-11	8.79	25.1
31-Aug-11	8.63	25.1
1-Sep-11	8.69	25.2
2-Sep-11	8.39	25.6
3-Sep-11	8.27	26
6-Sep-11	8.69	25.5
7-Sep-11	8.63	24.9
8-Sep-11	8.56	24.9
9-Sep-11	8.20	25.2
12-Sep-11	8.55	25.4
13-Sep-11	8.50	25.3

Spotsylvania HS STP (VA0087271)
Effluent pH and Temperature Data
Jan 2011 -- Dec 2011

14-Sep-11	8.50	25.2
15-Sep-11	8.43	25.4
16-Sep-11	8.45	24.6
17-Sep-11	8.07	24.5
19-Sep-11	8.44	24
20-Sep-11	8.56	23.8
21-Sep-11	8.33	24
22-Sep-11	8.30	24.4
23-Sep-11	7.67	25.2
24-Sep-11	8.05	24.7
26-Sep-11	8.22	24.7
27-Sep-11	8.16	24.9
28-Sep-11	8.15	24.7
29-Sep-11	8.14	24.7
30-Sep-11	8.18	24.3
1-Oct-11	7.23	24.4
3-Oct-11	7.82	22.5
4-Oct-11	7.71	22.2
5-Oct-11	7.46	21.9
6-Oct-11	7.53	22.5
7-Oct-11	7.51	22.4
8-Oct-11	7.24	22.9
10-Oct-11	7.75	22.5
11-Oct-11	7.87	22.5
12-Oct-11	7.81	22.8
13-Oct-11	7.62	23
14-Oct-11	7.75	23
15-Oct-11	7.65	22.8
17-Oct-11	8.04	21.9
18-Oct-11	8.01	22.6
19-Oct-11	7.88	22.4
20-Oct-11	7.85	22.3
21-Oct-11	7.78	21.4
22-Oct-11	7.97	21.2
24-Oct-11	8.17	20.5
25-Oct-11	8.13	20.5
26-Oct-11	8.00	20.6
27-Oct-11	7.96	21.1
28-Oct-11	7.82	21
29-Oct-11	7.88	20.2
31-Oct-11	8.26	18.3
1-Nov-11	8.24	18.1
2-Nov-11	8.13	17
3-Nov-11	7.96	18.2
4-Nov-11	7.95	8.1
5-Nov-11	7.84	8.5
7-Nov-11	8.13	18
8-Nov-11	8.05	17.9
9-Nov-11	7.96	17.8
10-Nov-11	7.54	17.1
11-Nov-11	7.27	18.1
12-Nov-11	8.00	17.7
14-Nov-11	7.81	17.3

Spotsylvania HS STP (VA0087271)
Effluent pH and Temperature Data
Jan 2011 -- Dec 2011

15-Nov-11	8.03	18.1
16-Nov-11	7.96	18.4
17-Nov-11	7.82	18.5
18-Nov-11	7.84	18
19-Nov-11	7.60	16.8
21-Nov-11	8.05	17.7
22-Nov-11	8.15	18.2
23-Nov-11	7.92	18.9
25-Nov-11	8.24	17.7
26-Nov-11	8.14	17.4
28-Nov-11	8.34	17.9
29-Nov-11	8.19	18.5
30-Nov-11	7.95	18.4
1-Dec-11	7.96	17.8
2-Dec-11	7.78	17.2
3-Dec-11	7.60	17
5-Dec-11	7.55	16.7
6-Dec-11	7.41	17.6
7-Dec-11	7.55	18.3
8-Dec-11	7.75	17.9
9-Dec-11	7.77	17
10-Dec-11	7.54	16.6
12-Dec-11	7.79	15.2
13-Dec-11	7.51	14.9
14-Dec-11	7.48	15
15-Dec-11	7.67	15.4
16-Dec-11	7.64	16.2
17-Dec-11	7.66	16.2
19-Dec-11	8.00	14.8
20-Dec-11	7.97	14.8
21-Dec-11	8.07	15.5
24-Dec-11	8.23	16.3
27-Dec-11	8.39	14.5
28-Dec-11	8.42	14.1
29-Dec-11	8.39	13.5
30-Dec-11	8.05	13.3
31-Dec-11	7.98	13.4
90th Percentile	**8.40**	**25.60**
10th Percentile	**7.41**	

Attachment 7

FRESHWATER
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Spotsylvania County High School Permit No.: VA0087271

Receiving Stream: Ta River Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =		mg/L
90% Temperature (Annual) =		deg C
90% Temperature (Wet season) =		deg C
90% Maximum pH =		SU
10% Maximum pH =		SU
Tier Designation (1 or 2) =	1	
Public Water Supply (PWS) Y/N? =	n	
Trout Present Y/N? =	n	
Early Life Stages Present Y/N? =	y	

Stream Flows

1Q10 (Annual) =	0	MGD
7Q10 (Annual) =	0	MGD
30Q10 (Annual) =	0	MGD
1Q10 (Wet season) =	0	MGD
30Q10 (Wet season)	0	MGD
30Q5 =	0	MGD
Harmonic Mean =	0	MGD

Mixing Information

Annual - 1Q10 Mix =	0	%
- 7Q10 Mix =	0	%
- 30Q10 Mix =	0	%
Wet Season - 1Q10 Mix =	0	%
- 30Q10 Mix =	0	%

Effluent Information

Mean Hardness (as CaCO3) =	50	mg/L
90% Temp (Annual) =	26	deg C
90% Temp (Wet season) =		deg C
90% Maximum pH =	8.4	SU
10% Maximum pH =	7.41	SU
Discharge Flow =	0.028	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenapthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile[C]	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin [C]	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	3.88E+00	6.15E-01	na	--	3.88E+00	6.15E-01	na	--	--	--	--	--	--	--	--	--	3.88E+00	6.15E-01	na	--
Ammonia-N (mg/l) (High Flow)	0	3.88E+00	1.29E+00	na	--	3.88E+00	1.29E+00	na	--	--	--	--	--	--	--	--	--	3.88E+00	1.29E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	o	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene [C]	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine[C]	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis2-Chloroethyl Ether [C]	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate [C]	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform [C]	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	1.8E+00	6.6E-01	na	--	1.8E+00	6.6E-01	na	--	--	--	--	--	--	--	--	--	1.8E+00	6.6E-01	na	--
Carbon Tetrachloride [C]	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane [C]	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Chlorodibromomethane[C]	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	**1.3E+02**
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	**1.1E+04**
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	**1.6E+03**
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	**1.5E+02**
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	**8.3E-02**	**4.1E-02**	na	--
Chromium III	0	3.2E+02	4.2E+01	na	--	3.2E+02	4.2E+01	na	--	--	--	--	--	--	--	--	--	**3.2E+02**	**4.2E+01**	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	**1.6E+01**	**1.1E+01**	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene [C]	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	**1.8E-02**
Copper	0	7.0E+00	5.0E+00	na	--	7.0E+00	5.0E+00	na	--	--	--	--	--	--	--	--	--	**7.0E+00**	**5.0E+00**	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	**2.2E+01**	**5.2E+00**	na	**1.6E+04**
DDD [C]	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	**3.1E-03**
DDE [C]	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	**2.2E-03**
DDT [C]	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	**1.1E+00**	**1.0E-03**	na	**2.2E-03**
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	**1.0E-01**	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	**1.7E-01**	**1.7E-01**	na	--
Dibenz(a,h)anthracene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	**1.8E-01**
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	**1.3E+03**
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	**9.6E+02**
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	**1.9E+02**
3,3-Dichlorobenzidine[C]	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	**2.8E-01**
Dichlorobromomethane [C]	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	**1.7E+02**
1,2-Dichloroethane [C]	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	**3.7E+02**
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	**7.1E+03**
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	**1.0E+04**
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	**2.9E+02**
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane[C]	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	**1.5E+02**
1,3-Dichloropropene [C]	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	**2.1E+02**
Dieldrin [C]	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	**2.4E-01**	**5.6E-02**	na	**5.4E-04**
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	**4.4E+04**
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	**8.5E+02**
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	**1.1E+06**
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	**4.5E+03**
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	**5.3E+03**
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	**2.8E+02**
2,4-Dinitrotoluene [C]	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	**3.4E+01**
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	**5.1E-08**
1,2-Diphenylhydrazine[C]	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	**2.0E+00**
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	**2.2E-01**	**5.6E-02**	na	**8.9E+01**
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	**2.2E-01**	**5.6E-02**	na	**8.9E+01**
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	**2.2E-01**	**5.6E-02**	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	**8.9E+01**
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	**8.6E-02**	**3.6E-02**	na	**6.0E-02**
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	**3.0E-01**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor [C]	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide[C]	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene[C]	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene[C]	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane Alpha-BHC[C]	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane Beta-BHC[C]	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane Gamma-BHC[C] (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene [C]	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone[C]	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	4.9E+01	5.6E+00	na	--	4.9E+01	5.6E+00	na	--	--	--	--	--	--	--	--	--	4.9E+01	5.6E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	- -	- -	1.4E+00	7.7E-01	- -	- -	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	- -	- -
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride [C]	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	1.0E+02	1.1E+01	na	4.6E+03	1.0E+02	1.1E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.0E+02	1.1E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine[C]	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine[C]	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine[C]	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total[C]	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol [C]	0	1.3E+01	1.0E+01	na	3.0E+01	1.3E+01	1.0E+01	na	3.0E+01	--	--	--	--	--	--	--	--	1.3E+01	1.0E+01	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**			
(ug/l unless noted)	Conc.	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	**Acute**	**Chronic**	**HH (PWS)**	**HH**
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	**2.0E+01**	**5.0E+00**	**na**	**4.2E+03**
Silver	0	1.0E+00	--	na	--	1.0E+00	--	na	--	--	--	--	--	--	--	--	--	**1.0E+00**	**--**	**na**	**--**
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
1,1,2,2-Tetrachloroethane[C]	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.0E+01**
Tetrachloroethylene[C]	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.3E+01**
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**4.7E-01**
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**6.0E+03**
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Toxaphene [C]	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	**7.3E-01**	**2.0E-04**	**na**	**2.8E-03**
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	**4.6E-01**	**7.2E-02**	**na**	**--**
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**7.0E+01**
1,1,2-Trichloroethane[C]	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**1.6E+02**
Trichloroethylene [C]	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**3.0E+02**
2,4,6-Trichlorophenol [C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**--**
Vinyl Chloride[C]	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	**--**	**--**	**na**	**2.4E+01**
Zinc	0	6.5E+01	6.6E+01	na	2.6E+04	6.5E+01	6.6E+01	na	2.6E+04	--	--	--	--	--	--	--	--	**6.5E+01**	**6.6E+01**	**na**	**2.6E+04**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
6. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
7. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	3.9E-01
Chromium III	2.5E+01
Chromium VI	6.4E+00
Copper	2.8E+00
Iron	na
Lead	3.4E+00
Manganese	na
Mercury	4.6E-01
Nickel	6.8E+00
Selenium	3.0E+00
Silver	4.2E-01
Zinc	2.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

2/28/2012 11:31:37 AM

Facility = Spotsylvania County HS
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 3.88
WLAc =
Q.L. = 0.2
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity
Maximum Daily Limit = 3.88
Average Weekly limit = 3.88
Average Monthly LImit = 3.88

The data are:

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E. Swamp and Marsh Waters

In a swamp environment, mixing is very limited. Due to the generally wide expanse of shallow, standing water, the effluent tends to displace ambient water so that initial mixing processes occur in an area where no significant dilution is available. There is very little turbulence and ambient mixing is mostly due to concentration gradients. Thus, it takes place very, very slowly.

Tidal marshes are periodically flooded at high tide but usually do not have standing water during the entire tidal cycle. Mixing in this situation is intermittent and complicated and is not amenable to analysis.

No mixing zones should be allowed in these situations unless the discharger provides actual physical/chemical data to demonstrate acceptable conditions. This means that the effluent itself should meet all applicable criteria prior to discharge. Due to the generally poor mixing and possibly high instream waste concentrations in portions of the receiving streams where this guidance will be applied, it is necessary that these "self sustaining" effluent limits be utilized. Treat TRC and other toxics as "end of pipe" limits.

In keeping with the preceding discussion, OWPP has recommended the following effluent limits for discharges from municipal treatment facilities into swamp and marsh waters where the discharge cannot be easily modeled. These limits have been found to be representative of "self-sustaining" effluents. In effect, this means that the effluent will not normally violate the stream standards even if the stream consists of 100% effluent.

Parameter	Monthly Average	Weekly Average
$CBOD_5$:	10 mg/l	15 mg/l
TSS :	10 mg/l	15 mg/l
TKN :	3.0 mg/l	4.5 mg/l
D.O. :	5.0 mg/l (minimum)	

A TKN limit of 3.0 mg/l is stringent enough to protect any receiving waters from ammonia toxicity, hence an NH_3-N limit is unnecessary.

This guidance was condensed from a March 9, 1987 SWCB memo entitled "Advisory Notification of Effluent Limits for Swamp and Marsh Waters". Contact OWPP for additional information concerning these limits if you have questions or concerns.

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Spotsylvania County, Virginia.

PUBLIC COMMENT PERIOD: March 31, 2012 to 5:00 p.m. on April 30, 2012

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: The Spotsylvania County School Board, 8020 River Stone Drive, Spotsylvania, VA 22407 VA0087271

NAME AND ADDRESS OF FACILITY: Spotsylvania County High School Sewage Treatment Plant, 6975 Courthouse Road, Spotsylvania, VA 22553

PROJECT DESCRIPTION: The Spotsylvania County School Board has applied for a reissuance of a permit for the public Spotsylvania County High School Sewage Treatment Plant. The applicant proposes to release treated sewage wastewaters from a public high school at a rate of 0.028 million gallons per day into a water body. Sludge from the treatment process will be transferred to the FMC or Massaponnax WWTPs. The facility proposes to release the treated sewage into the Ta River in Spotsylvania County in the York River Watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: $cBOD_5$, TSS, pH, D.O., TKN, and *E. coli.*

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.
Name: Anna T. Westernik
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (703) 583-3837 E-mail: anna.westernik@deq.virginia.gov Fax: (703) 583-3821

Attachment 10

Revised 2/2003

State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Spotsylvania County High School STP
NPDES Permit Number:	VA0087271
Permit Writer Name:	Anna Westernik
Date:	February 22, 2012

Major [ ] **Minor** [X] **Industrial** [] **Municipal** [X]

I.A. Draft Permit Package Submittal Includes:	**Yes**	**No**	**N/A**
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?			X
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?			X
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics	**Yes**	**No**	**N/A**
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?		X	
6. Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?	X		
a. Has a TMDL been developed and approved by EPA for the impaired water?		X	
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?		X	
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	X		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	

Attachment 11

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12. Are there any production-based, technology-based effluent limits in the permit?	X		
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?	X		
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Checklist – for POTWs

II.A. Permit Cover Page/Administration	**Yes**	**No**	**N/A**
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	**Yes**	**No**	**N/A**
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?			X

II.C. Technology-Based Effluent Limits (POTWs)	**Yes**	**No**	**N/A**
1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	**Yes**	**No**	**N/A**
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?			X
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?	X		
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?		X	
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?	X		

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?	X		
2. Does the permit include appropriate storm water program requirements?			X

II.F. Special Conditions – cont.	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the "Nine Minimum Controls"?			X
b. Does the permit require development and implementation of a "Long Term Control Plan"?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?			X

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		

List of Standard Conditions – 40 CFR 122.41

Duty to comply	Property rights	Reporting Requirements
Duty to reapply	Duty to provide information	Planned change
Need to halt or reduce activity not a defense	Inspections and entry	Anticipated noncompliance
Duty to mitigate	Monitoring and records	Transfers
Proper O & M	Signatory requirement	Monitoring reports
Permit actions	Bypass	Compliance schedules
	Upset	24-Hour reporting
		Other non-compliance

2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	Anna Westernik
Title	Environmental Specialist Senior II
Signature	A Westernik
Date	February 22, 2012